

REMARKS/ARGUMENTS

Applicants thanks Examiner McKinnon for the helpful and courteous discussion of July 14, 2005. During the discussion the Examiner note that claims stating that the stable material of Claim 1 is in direct contact with the glass and/or substrate or claims that state that the stable material separates the substrate and/or glass and the refrigerant may be allowable pending an updated search.

One feature of the heat-transport device recited in present Claims 11 and 17 is the presence of a glass and/or a substrate that is covered and/or coated with a stable material. The presence of the stable material on the glass and/or substrate prevents, for example, the migration of sodium from a glass substrate to an area of the heat-transport device that is in contact with a refrigerant. In the absence of the stable material an alkaline component such as sodium may migrate from the glass substrate and react with the refrigerant and thereby generate hydrogen gas (page 8, lines 4-16). In one embodiment the stable material may be formed by coating the wick, glass and/or substrate of the heat-transport device by, for example, chemical vapor deposition.

It was the present inventors who discovered the source of the gas generation problem (specification page 2, lines 3-4).

Thus, by interposing a stable material between the refrigerant and the substrate and/or glass, the claimed invention provides a heat-transport device that is stable against decomposition of the refrigerant. If the refrigerant decomposes to form a gas the heat-transport device may generate too much pressure and rupture thereby releasing the refrigerant and destroying the heat-transport devices' ability to cool an electric device.

The Office is of the opinion that the presently claimed heat-transport device and method for making a heat-transport device are obvious in view of patents to Newton (U.S.

6,437,981) and Antoniadis (U.S. 5,948,552). On the one hand the Office admits that Newton does not disclose all of the claim limitations, for example:

Newton's invention discloses all of the claimed limitations from above except for the glass and/or the substrate is covered with a stable material; the stable material is selected from the group consisting of SiO₂, SiN, SiC and combination thereof; and the wick is covered with a stable material (see first full paragraph on page 3 of the Office Action of May 18, 2005).

On the other hand the Office states that because Antoniadis discloses a stable material covering glass or a substrate, the claimed invention is obvious.

Applicants traverse the rejection on grounds including *inter alia* (i) the Office's improper use of hindsight to recreate the claimed invention, (ii) the failure to give patentable weight to the present inventors recognizing the source of the gas generation problem, and (iii) the improper combination of non-analogous art to render the claimed invention obvious.

As was mentioned above, the Office admits that Newton does not disclose the stable material of the present claims. It appears that the Office may have attempted to recreate the claimed invention by simply searching for a secondary reference that discloses a stable material. The following tenet of patent law is a basic consideration that applies to obviousness rejections:

References must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention (see M.P.E.P. § 2141).

In the present case, the Office provided no motivation for combining Antoniadis with Newton except for the conclusory statement that combining the references "would provide an improved thermally efficient heat-dissipating device" (page 3, second to the last line). Further, the Office identified no motivation for including the protective layer (e.g., a stable material) of Antoniadis in the device of Newton. Applicants therefore submit that the Office improperly used hindsight to assemble a collection of the elements of the present claims as a

basis for asserting that the claimed invention is obvious. Because the Office's basis for the rejection is improper, Applicants request the withdrawal of the rejection.

MPEP 2151.02 (citing *In re Spinnoble*, 160 USPQ 237 (CCPA)) makes clear that discovering the source/cause of a problem must be considered in determining the obviousness of an invention. Moreover "a patentable invention may lie in the discovery of the source of the problem even though the remedy may be obvious once the source of the problem is identified".

Such is the case here. The present inventors discovered that once the unwanted gas is generated it interferes with the heat transport. In light of this observation, the inventors conceived of the claimed invention. The rejection of the present claims is improper because it gives not patentable weight to the inventors discovery of the source of the problem and ultimate solution.

Moreover, Applicants submit that Newton and Antoniadis represent non-analogous art. The Newton patent is drawn to a "Thermally Enhanced Microcircuit Package and Method of Forming Same" whereas the Antoniadis patent is drawn to a "Heat-Resistant Organic Electroluminescent Device" (see the titles of the respective patents). Applicants submit that the disclosures of Newton and Antoniadis are from wholly different arts as evidenced at least by the Titles. As further evidence that the prior art references are non-analogous art Applicants draw the Office's attention to the U.S. PTO classifications for Newton and Antoniadis (i.e., the U.S. PTO classifications appearing on the face of each patent). As is readily evident from the cover page of Newton and Antoniadis the U.S. PTO classifications and field of searches for the respective patents do not overlap.

Furthermore, Applicants submit that Antoniadis does not suggest a solution to the problem solved by the present application. As was discussed above, the presence of a stable material may prevent the migration of an alkaline component such as sodium ions from the

glass and/or substrate to a location in the heat-transport device that is in contact with the refrigerant. In Antoniadis the protective layer is on the external side of the prior art device (see Figure 2 of Antoniadis which shows the protective layer at an extreme outer position relative to the substrate layer).

Applicants submit that the protective layer of Antoniadis cannot inhibit the migration of an alkaline component such as sodium ions from the prior art substrate because each of the other layers of the Antoniadis device are interposed between the substrate and the protective layer. The interposing layers would therefore be subject to any ill effects associated with the migration of alkaline components (e.g., such as sodium ions) from the substrate through the prior art device.

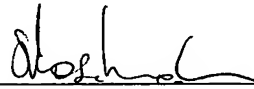
Further, Antoniadis does not disclose that the prior art protecting layer can intercept or prevent migration of alkaline components from a substrate into any layer or any part of the prior art device that is in contact with a refrigerant to protect the refrigerant from decomposition to a gas.

Applicants draw the Office's attention to new Claims 31-33 and 35 which require that the stable material is in contact with the glass and/or substrate or that the stable material separates the glass from the refrigerant.

For the reasons discussed above including (i) the Office's impermissible use of hindsight to recreate the claimed invention, (ii) failure of the Office to give patentable weight to the discovery of the gas generation problem, and (iii) the non-analogous nature of the arts wherein the prior art patents appear, Applicants submit that the presently claimed invention is novel and not obvious in view of the prior art relied upon by the Office. Applicants respectfully request the withdrawal of the rejections and the allowance of all now-pending claims.

Respectfully submitted,

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